

**Notice of Allowability****Application No.**

09/515,517

**Applicant(s)**

LOUNSBERY, MICHAEL

**Examiner**

Brian P. Werner

**Art Unit**

2621

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the interviews of 8/24/04 and 8/25/04.
2. ☒ The allowed claim(s) is/are 1,3-9,11-13 and 15-18.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☒ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date attached hereto.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)   |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>8/24/04 &amp; 8/25/04 .</u> |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                                      |
|   | 9. <input type="checkbox"/> Other _____.  |

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### EXAMINER'S AMENDMENT - ALLOWANCE

1. The following examiner's amendment/allowance is responsive to the personal interview conducted on August 24, 2004, and the telephonic interview conducted on August 25, 2004. Both interviews are summarized in the attached interview summary records.
2. An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment that places this application in condition for allowance. During a telephone conversation, applicant's representative Randy Beckers (Reg. 30,358) requested an extension of time for one (1) MONTH and authorized the Director to charge Deposit Account No. 193935 the required fee of \$110.00 for this extension and authorized the following examiner's amendment, and the required fee of \$86.00 for an additional independent claim. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

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02 FC:1201

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The application has been amended as follows:

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1. (currently amended) A system, comprising:

an input source providing a polygonal base mesh having a plurality of arbitrarily sided base faces; and

a computer analyzing the mesh and determining a linear identifier for any existing base face and a newly created face within an existing base face, the identifier comprising a base face identifier, a vertex index, a level and a path to the face, said computer determines said path by traversing faces within said base face mesh in a predetermined order relative to the vertex index such that [where] the identifier of the newly created face is independent of the order of creation of the faces.

2. (cancelled)

3. (currently amended) A system as recited in claim 1[2] wherein the identifier is stored as a fixed bit integer.

4. (original) A system as recited in claim 3, wherein said computer disregards leading zeros in the path responsive to the level when accessing the face using the identifier.

5. (original) A system as recited in claim 1, wherein said computer determines a unique vertex name for a vertex of the face.

6. (original) A storage as recited in claim 1, wherein said computer determines a unique edge name for an edge of the face.

7. (previously presented) A system as recited in claim 1, wherein the vertex index identifies a level one subdivision vertex of a zero level subdivision base mesh face corresponding to the face.

8. (previously presented) A system for providing unique names for faces and vertices in a hierarchical subdivision surface from which each face of a surface, each vertex of a surface and each edge of a surface can be unambiguously identified, said system comprising:

an input source providing a polygonal base mesh having a new face created by a new vertex; and

a computer analyzing the mesh, determining an identifier for the new face, determining a unique vertex name for the new vertex of the new face, determining a unique edge name for an edge of the new face, with the new face identifier comprising a base face identifier identifying the face surrounding the new vertex, a vertex index and a path to the face, with the vertex index identifying a level one subdivision vertex of a zero level subdivision base mesh face corresponding to the face, with the identifier comprising a level indicator indicating a subdivision level of the face and with the identifier stored as a fixed bit integer.

9. (currently amended) A method of determining a unique identifier for a new face of a mesh in a subdivision surface created by a new vertex, comprising:

determining a base mesh face surrounding the new vertex;

determining a vertex index of the new face;

determining a path to the new face by traversing faces within the mesh in a predetermined order relative to the vertex index;

determining a level of the new face; and

combining the base mesh face, the vertex index, the level and the path as the unique identifier such that [where] the identifier of the newly created face is independent of the order of creation of the faces.

10. (cancelled)

11. (currently amended) A method of accessing a new face of a mesh in a subdivision surface created by a new vertex, comprising:

obtaining a face identifier including a base face index of a face surrounding the new vertex, a vertex index, a level and a path to the face; and

traversing the path to the face using the base face index, the level and the vertex index by traversing faces within the mesh in a predetermined order relative to the vertex index such that the identifier of the new face is independent of the order of creation of other faces.

12. (currently amended) A method as recited in claim 11, wherein the [identifier includes a level and the] traversing includes a number of repeated steps which number is responsive to the level.

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13. (currently amended) A computer readable storage having a face name data structure providing a face identifier for a subdivision surface face and controlling access for the face by a computer using the face name data structure relative to a vertex with the face identifier comprising a base face identifier field storing a base face surrounding the vertex, a vertex index field storing a vertex index, a level field storing a level of the surface face and a path field storing a path to the surface face traversing faces within the subdivision surface in a predetermined order relative to the vertex index such that the identifier of the surface face is independent of the order of creation of other faces.

14. (cancelled)

15. (original) A storage as recited in claim 13, further comprising a unique vertex name for a vertex of the face.

16. (original) A storage as recited in claim 13, further comprising a unique edge name for an edge of the face.

17. (currently amended) An apparatus for analyzing a mesh having plural faces each having an arbitrary number of sides, a new vertex and new faces corresponding to the new vertex, the apparatus comprising a computer analyzing the mesh and determining a unique identifier for a first face of the new faces comprising a base face identifier identifying the face surrounding the new vertex, a vertex index on the new first face, a level of the new first face and a path to the new first face determined by traversing faces within the mesh in a predetermined order relative to the vertex index such that the identifier of the first face is independent of the order of creation of the faces.

18. (new) A system, comprising:

an input source providing a polygonal base mesh having a plurality of arbitrarily sided base faces; and

a computer analyzing the mesh and determining a linear identifier for any existing base face and a newly created face within an existing base face, the identifier comprising a base face identifier, a vertex index, a level and a path to the face, and where said computer determines the identifier of the newly created face independent of the order of creation of the faces and such that each face is uniquely identified without reference to other identifiers.

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3. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the originally filed drawings appear to be informal, and hand drawn.

4. Claims 1, 3-9, 11-13 and 15-18 are allowed. These claims will be renumbered as 1-15. The prosecution as a whole makes clear the reasons for allowing the claims (i.e., the limitations that serve to overcome the prior art of record)<sup>1</sup>. In particular, the distinguishing limitations added by examiner's amendment in response to the aforementioned interviews.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian P. Werner whose telephone number is 703-306-3037. The examiner can normally be reached on M-F, 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H. Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

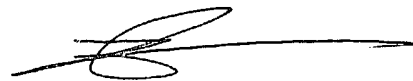
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<sup>1</sup> As noted in 37 CFR § 1.104(e) and MPEP § 1302.14, an examiner's statement of reasons for allowance should only be made if "the examiner believes that the record of the prosecution as a whole does not make clear his or her reasons for allowing a claim or claims."

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian Werner  
Primary Examiner  
Art Unit 2621  
9/7/2004



**BRIAN WERNER**  
**PRIMARY EXAMINER**